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It is widely understood among scientists and criminal and civil lawyers that eyewitnesses are often inaccurate, and that inaccurate information can contaminate memories of other eyewitnesses.[1] It is less widely known—although no less true—that when misleading claims are repeated, they are more likely to damage other people's memories than when those claims are made only once.[2] But until recently, neither lawyers nor scientists knew the answer to these questions: Does one person repeating an inaccurate claim do more damage to the memories of other eyewitnesses than that same person making the claim only once? And when that inaccurate claim is repeated, does it matter how many people make it? In this paper, we address those questions.

Suppose a robbery occurs for which there were four eyewitnesses. If one eyewitness, let's call him John, mistakenly tells another eyewitness, Ringo, that the robber was wearing a blue hat—when in fact the robber was wearing a black hat—than we know Ringo may, inadvertently, remember later that the robber was wearing a blue hat. But would Ringo be even more likely to make this mistake if John had repeated that inaccurate claim multiple times? By contrast, suppose that all of the eyewitnesses—John, Paul, and George—mistakenly claimed it was a blue hat. Would their converging evidence be more misleading to Ringo than if John had simply repeated it multiple times? Put another way, do inaccurate claims do more damage when made by multiple sources, or is it the repetition of claims that matters?

WHAT ROLE DOES THE NUMBER OF SOURCES TAKE IN THE BELIEVABILITY OF A CLAIM?

On the one hand, it is intuitively appealing that a claim would be more credible or more damaging when there is consensus among eyewitnesses. Indeed, scientific research tells us we put more trust in our own memories when other people who were there remember it the same way,[3] and we have more trust in the details of a crime that multiple eyewitnesses remember than the details of a crime that only one eyewitness does.[4] And not only is this trust intuitively appealing, but research supports its validity: When a suspect is picked out of a lineup by multiple eyewitnesses, their identification is more likely to be accurate than when that suspect is picked by only one eyewitness.[5] In addition, people's susceptibility to misleading information changes in response to characteristics of the person making the claim. For instance, an innocent bystander is more misleading than the perpetrator of the crime.[6] And even more subtle characteristics of a misleading eyewitness can influence people's susceptibility to misinformation. In one study, eyewitnesses with more powerful and socially attractive accents were more misleading than eyewitnesses with less powerful and socially attractive accents.[7] Taken together, these findings suggest that the consensus of multiple eyewitnesses should be more misleading than the repeated claims of a single eyewitness.

On the other hand, we know that repeated information can lead people to make mistakes. Trivia questions that require a true/false response are more likely to be rated as true when they are repeated;[8] when people repeatedly view pictures of a place they have never visited, they become more confident that they have been there before;[9] and when one person states an opinion multiple times, other people are more likely to believe that opinion is held by others as well.[10] Considered together, these findings suggest that the repetition of inaccurate claims should be more important than the consensus of multiple eyewitnesses.

Footnotes

1. This article is adapted from Jeffrey L. Foster et al., *Repetition, Not Number of Sources, Increases Both Susceptibility to Misinformation and Confidence in the Accuracy of Eyewitnesses*, 139 Acta Psychologica 320 (2012).
2. Karen J. Mitchell & Maria S. Zaragoza, *Repeated Exposure to Suggestion and False Memory: The Role of Contextual Variability*, 35 J. of Memory & Language 246 (1996); Maria S. Zaragoza & Karen J. Mitchell, *Repeated Exposure to Suggestion and the Creation of False Memories*, 7 Psychol. Sci. 294 (1996).
3. Michael Ross et al., *Assessing the Accuracy of Conflicting Autobiographical Memories*, 26 Memory & Cognition 1233 (1998).
4. Adam J. L. Harris & Ulrike Hahn, *Bayesian Rationality in Evaluating Multiple Testimonies: Incorporating the Role of Coherence*, 35 J. of Experimental Psychol.: Learning, Memory, & Cognition 1366 (2009).
5. Steven E. Clark & Gary L. Wells, *On the Diagnosticity of Multiple-Witness Identifications*, 32 Law & Hum. Behav. 406 (2008).
6. David H. Dodd & Jeffrey M. Bradshaw, *Leading Questions and Memory: Pragmatic Constraints*, 19 J. of Verbal Learning & Verbal Behav. 695 (1980).
7. Lana A. Vornik et al., *The Power of the Spoken Word: Sociolinguistic Cues Influence the Misinformation Effect*, 11 Memory 101 (2003).
8. Frederick T. Bacon, *Credibility of Repeated Statements: Memory for Trivia*, 5 J. of Experimental Psychol.: Hum. Learning & Memory 241 (1979).
9. Alan S. Brown & Elizabeth J. Marsh, *Evoking False Beliefs About Autobiographical Experience*, 15 Psychonomic Bull. & Rev. 186 (2008).
10. Kimberlee Weaver et al., *Inferring the Popularity of an Opinion From Its Familiarity: A Repetitive Voice Can Sound Like a Chorus*, 92 J. of Personality & Soc. Psychol. 821 (2007).

WHY DOES REPETITION LEAD PEOPLE TO MAKE THESE ERRORS?

One possibility is that when we encounter information we have seen before, our cognitive system processes that information differently. Call it an adaptive shortcut: if you've seen x before and it didn't attack you the first time, then x is probably safe enough for your brain to spend less effort making sense of it. When information is processed with this shortcut, we do not know it directly, but we often experience a feeling of familiarity: "Ah, I have seen this before." Cognitive scientists have discovered that we also associate this kind of processing with a feeling of truth.[11] In other words, repeated information tends to feel more familiar, and more true, than unrepeated information.

IS IT THE REPETITION OF MISLEADING CLAIMS THAT MATTERS OR THE NUMBER OF PEOPLE WHO MAKE THEM?

We addressed the effects of repetition and number of eyewitnesses in two experiments. In our first experiment, we asked if repeating misleading claims would change the way people remembered a mock crime, regardless of how many eyewitnesses repeated those claims. To answer this question, people took part in an experiment based on a well-known eyewitness-memory error called the *misinformation effect*: They watched an event, then read a misleading description of the event, and finally were tested for what they remembered seeing.[12] Typically, many people report seeing the misleading details in the event.[13]

In our study, people first watched a video of an electrician who stole items while doing repairs at a client's house. Later, they read three eyewitness police reports—ostensibly written over three consecutive days—about the activities of the electrician. Sometimes, all three reports misled people about what happened in the video; other times only one of the three reports misled people. To manipulate the source(s) of the reports, we told half the people that three different eyewitnesses made these reports; we told the other half that the same eyewitness made all three reports. For example, people read three eyewitness reports from Day 1, Day 2, and Day 3: For half of the people, Eyewitness 5 made the Day 1 report; Eyewitness 9 made the Day 2 report; and Eyewitness 16 made the Day 3 report. The other half read the same reports—but all three reports were attributed to Eyewitness 9. Later, people took a test asking them about specific details they saw in the mock crime.[14]

In summary, people read the reports in one of four conditions: 1) three eyewitnesses, each making the same misleading claims across the three reports; 2) one eyewitness making the same claims across the three reports; 3) three eyewitnesses, only one of who makes the claims in only one report; and 4) one eyewitness who makes the claims in only one report.[15]

"[I]t was the repetition of misleading claims that mattered, not how many sources the information came from."

If what matters most is the number of fellow eyewitnesses giving innacurate, misleading information, then our results should show that people were the most misled when they read misinformation three times from three eyewitnesses. But if what matters most is the repetition of innacurate information, then our results should show that people became more misled when misleading claims were repeated, regardless of how many eyewitnesses made them.

Our results suggest that it was repetition that mattered most. We found three important results. First, and consistent with research on the misinformation effect, when people read misleading details about the crime they had witnessed, they incorporated some of those misleading details into their memory of the original crime. Second, when the misinformation was repeated, people became more misled than when the misinformation was not repeated. And third, people were similarly misled regardless of whether that misinformation was attributed to a single eyewitness who repeated it or to three independent eyewitnesses converging on the same misleading claims. In short, it was the repetition of misleading claims that mattered, not how many sources the misinformation came from.[16]

Let's return to our original example. Based on our results, we can predict that if John repeatedly tells Ringo the incorrect color of the robber's hat, Ringo will more likely be misled than if John tells him only once. But we can also predict that if that claim were repeated, it would make little difference if John says it, or if John, Paul, and George each make the same claim once: Either way, Ringo would hear it three times and be similarly misled. But what if Ringo had never seen the crime unfold in the first place and was trying to determine the truth about what occurred? How might John's repeated testimony affect Ringo's belief about what really happened? That is the question we addressed in our second study.

11. Adam L. Alter & Daniel M. Oppenheimer, *Uniting the Tribes of Fluency to Form a Metacognitive Nation*, 13 PERSONALITY & SOC. PSYCHOL. REV. 219 (2009); Hal L. Arkes et al., *Determinants of Judged Validity*, 27 J. OF EXPERIMENTAL SOC. PSYCHOL. 576 (1991); Alice Dechêne et al., *The Truth About the Truth: A Meta-Analytic Review of the Truth Effect*, 14 PERSONALITY & SOC. PSYCHOL. REV. 238 (2010); Colleen M. Kelley & D. Stephen Lindsay, *Remembering Mistaken for Knowing: Ease of Retrieval as a Basis for Confidence in Answers to General Knowledge Questions*, 32 J. OF MEMORY & LANGUAGE 1 (1993); Marcia Johnson et al., *Source Monitoring*, 114 PSYCHOL. BULL. 3 (1993); Christian Unkelbach, *Reversing the Truth Effect: Learning the Interpretation of Processing Fluency in Judgments of Truth*, 33 J. OF EXPERIMENTAL PSYCHOL.: LEARNING, MEMORY, & COGNITION 219 (2007); Christian Unkelbach & Christoph Stahl, *A Multinomial Modeling Approach to Dissociate Different Components of the Truth Effect*, 18 CONSCIOUSNESS & COGNITION 22 (2009).
12. Foster et al., *supra* note 1, at 321.
13. Elizabeth F. Loftus et al., *Semantic Integration of Verbal Information Into a Visual Memory*, 4 J. OF EXPERIMENTAL PSYCHOL.: HUM. LEARNING & MEMORY 19 (1978); Mitchell & Zaragoza, *supra* note 2; Melanie K. T. Takarangi et al., *Modernising the Misinformation Effect: The Development of a New Stimulus Set*, 20 APPLIED COGNITIVE PSYCHOL. 583 (2006).
14. Foster et al., *supra* note 1, at 321.
15. *Id.*
16. *Id.* at 322.

"[A] single eyewitness's repeated claims were as influential as the claims made by three eyewitnesses."

IS IT THE REPETITION OF EYEWITNESS CLAIMS OR THE NUMBER OF PEOPLE WHO MAKE THEM THAT AFFECT BELIEF IN THEIR ACCURACY?

Although our first experiment showed that repeating misinformation three times made people less accurate about what they saw, we still do not know if repeating inaccurate information would change how people might judge what happened when they never saw the crime unfold in the first place—this, of course, is the situation analogous to being a juror. It may be that people who did not see the crime would be even more susceptible to the influence of repetition: After all, they never saw the crime unfold and must rely entirely on the testimony of an eyewitness. But on the other hand, people may be more likely to scrutinize the sources of the claims when judging the accuracy of those claims, a behavior that should lead people to be more confident in claims that reach a consensus among multiple eyewitnesses.

In our second experiment, we wanted to know how the repetition of a claim and the number of sources making that claim might affect people's beliefs about the claim's accuracy. In our second experiment, we asked people to read the same three eyewitness reports from our first experiment, but in this case, people did not watch the video of the original crime. Thus, they could not know if claims about how the crime unfolded were true. After they read the eyewitness reports, people reported their confidence that each claim actually happened in the original crime.

Once again, our data suggest that it was repetition that mattered most. We found that when claims were repeated, people became more confident about those claims than when they were not repeated. In addition, people were similarly confident about repeated claims regardless of whether they were attributed to a single eyewitness who repeated it or three independent eyewitnesses all converging on the same claims. In short, it was the repetition of misleading claims that mattered, not how many sources the misinformation came from.[17]

SUMMARY AND CONCLUSIONS

Across two experiments, we asked two questions: First, does one person repeating inaccurate claims do more damage to the memories of other eyewitnesses than that same person making the claims only once? And second, when those inaccurate claims are repeated, does it matter how many people make them? The answers are yes and no, respectively. Our findings converged on the important role of repetition—over and above the role of how many people make the claims. More specifically, we found that the misleading claims of a single eyewitness were more damaging to fellow eyewitnesses' memories when that eyewitness repeated them, and that the claims of a single eyewitness were more credible to people who never saw the crime when the eyewitness repeated them. Moreover, a single eyewitness's repeated claims were as influential as the claims made by three eyewitnesses.

Why would one eyewitness repeating a claim become just as credible as three eyewitnesses? While the adaptive explanation we presented earlier—that if x has not eaten you before then x is probably safe—can explain why repeated information feels more true, it does not explain why people didn't put even more stock in claims repeated by multiple eyewitnesses.[18] We propose two possible explanations for this surprising finding. First, it may be that people did in fact put more stock into the repeated claims of multiple eyewitnesses,[19] but that people also saw a single eyewitness repeating claims as highly consistent. Indeed, consistency is one attribute that makes people appear more credible, and thus more accurate.[20] In other words, one eyewitness repeating a claim may make the claim more credible for a different reason than three eyewitnesses each stating the same claim once does. On the other hand it may be that people failed to attend to the source of the repeated claims when judging their accuracy. Indeed, the likely explanation of why repeated misinformation misleads subjects more than unrepeated misinformation is that subjects' increased feelings of familiarity are not accompanied by increases in their ability to monitor the source of that familiarity.[21] Although both of these mechanisms will produce the patterns we found here, they provide different pathways to finding a way to reduce the effects of repetition. As such, future research will need to disentangle the effects of these mechanisms.

Of course, in the real world, multiple eyewitnesses may stand out in a variety of ways that our written reports did not. In our study the distinction between a single eyewitness and multiple eyewitnesses was controlled so that they varied on identification number only. In court, these eyewitnesses would vary in superficial (accent, gender, etc.) and important (relationship to the suspect, motive, etc.) ways—distinctions that jurors might use to determine the credibility of their claims. But would these distinctions actually help to reduce the deleterious effects of repetition? That question is still one to be answered by additional experimentation.

In the meantime, the problems with inaccurate eyewitnesses during a trial are unquestionable.[22] Indeed, looking back at the 289 wrongfully convicted people freed by The Innocence Project to date shows that in more than 75% of cases, eyewitness testimony played a role in their wrongful convictions.[23] Our research suggests that a single person repeating inaccurate

17. *Id*. at 324.
18. Kelley & Lindsay *supra* note 11; Weaver et al. *supra* note 10; Unkelbach, *supra* note 11.
19. Harris & Hahn, *supra* note 4; Ross et al., *supra* note 3.
20. Neil Brewer & Anne Burke, *Effects of Testimonial Inconsistencies and Eyewitness Confidence on Mock-Juror Judgments*, 26 LAW AND HUM. BEHAV. 353 (2002).
21. Zaragoza & Mitchell, *supra* note 2.
22. Richard A. Leo, *Rethinking the Study of Miscarriages of Justice: Developing a Criminology of Wrongful Conviction*, 21 J. OF CONTEMP. CRIM. JUST. 201 (2005).
23. Innocence Project, http://www.innocenceproject.org/understand/Eyewitness-Misidentification.php

claims can lead jurors and other eyewitnesses to put more faith in those claims than they should—calling on us to be wary about the power of a single, repeated voice.

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